WE CLAIM:

1. A physical port controller comprising:

a. an up-down counter being incremented as content is received via a corresponding input port and decremented at an input port service rate;

b. a maximum burst size register holding a value corresponding to a maximum amount of content the input port is allowed to receive as content is being received by the input port at a rate above the input port service rate; and

c. a first comparator providing in real time an acceptance rate limiting control signal in comparing the value of the up-down counter to the value of the maximum burst size register,

the acceptance rate limiting control signal providing link-layer input port-based hardware implemented acceptance rate limiting control.

2. The physical port controller claimed in claim 1, further comprising a committed rate register holding a value representative of the service rate, the service rate corresponding to a Service Level Agreement (SLA) committed rate, the input port-based hardware implemented acceptance rate limiting control enforcing a corresponding SLA agreement.

3. The physical port controller claimed in claim 2, wherein the physical port is one of an Ethernet port, an Asynchronous Transfer Mode port, a Frame Relay port, and a Synchronous Optical Network/Synchronous Data Hierarchy port.

4. The physical port controller claimed in claim 1, wherein the up-down counter value is representative of a buffer occupancy level of a receive port buffer.

5. The physical port controller claimed in claim 1, further comprising means for incrementing the up-down counter as valid content is received.

6. The physical port controller claimed in claim 5, wherein the means for incrementing the up-down counter is responsive to a combination of a receiving frame signal, a line clock signal, and the acceptance rate limiting control signal.

7. The physical port controller claimed in claim 1, further comprising means for decrementing the up-down counter.

8. The physical port controller claimed in claim 7, wherein the means for decrementing the up-down counter further comprises one of: means for identifying bus transactions servicing the input port, and means for generating a signal train at the service rate.

9. The physical port controller claimed in claim 8, wherein the means for generating a signal train at the service rate further comprises a committed rate register holding a value employed in programming one of: an adjustable signal train generator generating a signal train at the service rate, and a frequency divider to derive a signal train at the service rate from a line rate clock associated with the port.

10. The physical port controller claimed in claim 7, further comprising a second comparator determining in real time whether the value of the up-down counter is less than the value specified in a low watermark register in determining that the input port is receiving content at a rate below the service rate.

11. The physical port controller claimed in claim 10, further comprising means for introducing hysteresis in effecting acceptance rate limiting control as the value of the up-down counter transitions between the maximum burst size value held in the maximum burst size register and the low watermark value held in the low watermark register.

12. The physical port controller claimed in claim 11, wherein the means for introducing hysteresis in effecting acceptance rate limiting control further comprises: a master-slave flip-flop.

13. The physical port controller claimed in claim 12, wherein the master slave flip-flop further comprises a J-K flip-flop.

14. The physical port controller claimed in claim 10, further comprising means for providing an assessment of a degree of non-adherence to a corresponding SLA.

15. The physical port controller claimed in claim 14, wherein the means for providing the assessment of the degree of non-compliance to the SLA further comprises a dropped frame counter counting the number of frames dropped derived from a logical combination between the receiving frame signal and the acceptance rate limiting control signal.

16. The physical port controller claimed in claim 15, wherein the means for providing the assessment of the degree of non-compliance to the SLA further comprises a discarded content counter counting the amount of content discarded derived from a logical combination between the receiving frame signal, the acceptance rate limiting control signal, and a line clock signal.

17. A line card comprising a physical port controller claimed in claim 1, the operation of the physical port controller, in enforcing acceptance rate limiting control, ensuring that the reception rate of a corresponding input port associated with the line card does not exceed a highest service rate at which a data bus to which the line card is connectable to can operate at.

18. The line card claimed in claim 17, further comprising one of: an Ethernet line card, a Frame Relay line card, an Asynchronous Transfer Mode line card, and a Synchronous Optical Network/Synchronous Digital Hierarchy line card.

19. A multi-ported line card comprising a plurality of physical port controllers claimed in claim 1, the combined operation of the plurality of physical port controllers enforcing acceptance rate limiting control enforces bandwidth reservations for each corresponding input port for corresponding portions of bandwidth on a data bus to which the multi-ported line card is connectable to.

20. The multi-ported line card claimed in claim 19, further comprising one of: a multi-ported Ethernet line card, a multi-ported Frame Relay line card, a multi-ported Asynchronous Transfer Mode line card, and a multi-ported Synchronous Optical Network/Synchronous Digital Hierarchy line card.

21. A multi-ported network node comprising a plurality of physical port controllers claimed in claim 1, the combined operation of the plurality of physical port controllers, in enforcing acceptance rate limiting control, reserving for each input port corresponding portions of bandwidth on a data bus servicing the corresponding plurality of physical ports.

22. A method of enforcing acceptance rate limiting control for an input port comprising the steps of:

a. incrementing the value of an up-down counter associated with an input port as content is received;

b. decrementing the value of the up-down counter at a service rate;

c. activating an acceptance rate limiting control signal upon determining that the value of the up-down counter is greater than a maximum burst size value; and

d. deactivating the acceptance rate limiting control signal upon determining that the value of the up-down counter is lower than a low watermark value,

the activation and the deactivation of the acceptance rate limiting control signal with the service rate set at an agreed upon Service Level Agreement (SLA) committed rate enforcing the SLA at the input port.

23. The method claimed in claim 22, wherein decrementing the up-down counter, the method further comprising a step of: generating a signal train repeating at the service rate by programming an adjustable clock with a value specified by a committed rate register.

24. The method claimed in claim 22, wherein decrementing the up-down counter, the method further comprising a step of: generating a signal train repeating at the service rate by programming a frequency divider to derive the signal train from a line clock associated with the input port.